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### **REMARKS**

Claims 1 through 11, 13 through 21 and new Claim 22 are pending in the application.

Claim 1 has been amended to reflect advantageous inventive films in which the base layer and overlayer (A) are formed from polyester consisting essentially of polyethylene terephthalate, polyethylene 2,6-naphthalate, poly-1,4-cyclohexane-dimethylene terephthalate and polyethylene 2,6-naphthalate bibenzoate and mixtures thereof. Support for this amendment can be found in the Application-as-filed, for example on Page 4, line 27 through Page 5, line 3.

Claim 1 has also been amended to reflect advantageous inventive films including poly(m-xylenedipamide) having a melt viscosity smaller than 2000 poise. Support for this amendment can be found in the Application-as-filed, for example on Page 7, lines 18 through 20.

Claim 1 has additionally been amended to reflect that the foregoing advantageous inventive films exhibit an oxygen transmission (OTR) smaller than  $50 \text{ cm}^3 \text{ m}^{-2} \text{ d}^{-1} \text{ bar}^{-1}$  and an opacity of less than 20%. Support for this amendment can be found in the Application-as-filed, for example on Page 14, Table 1.

Claims 5 and 6 have been canceled, as their subject matter has been incorporated into Claim 1.

Claims 7 through 9 and 11 have been amended to conform to Claim 1 as-amended.

Claim 13 has been amended to reflect particularly advantageous inventive polyester films having an oxygen transmission (OTR) smaller than  $40 \text{ cm}^3 \text{ m}^{-2} \text{ d}^{-1} \text{ bar}^{-1}$ . Support for this amendment can be found in the Application-as-filed, for example on Page 14, Table 1.

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Claim 14 has been amended to reflect particularly advantageous inventive polyester films exhibiting an opacity smaller than 15 %. Support for this amendment can be found in the Application-as-filed, for example on Page 14, Table 1.

Claim 21 has been canceled, as its subject matter has been incorporated into Claim 1.

Claim 22 has been added to complete the record for examination and highlight particularly advantageous embodiments of the invention.

Claim 22 is directed to inventive films in which the base layer (B) and overlayer (A) are formed from polyester consisting essentially of (a) one or more aromatic carboxylic acids selected from terephthalic acid, naphthalene-2,6-dicarboxylic acid, biphenyl-4,4'-dicarboxylic acid, and isophthalic acid and (b) one or more diols selected from 1,4-bis(hydroxymethyl)cyclohexane and ethylene glycol that further include poly(m-xylenedipamide) having a melt viscosity smaller than 2000 poises and optionally an additive consisting essentially of stabilizer(s) and/or antiblocking agent(s). The inventive films of Claim 23 include exhibit an oxygen transmission (OTR) smaller than  $50 \text{ cm}^3 \text{ m}^{-2} \text{ d}^{-1} \text{ bar}^{-1}$  in combination with an opacity of less than 20%. Support for Claim 23 can be found in the Application as filed, for example on Page 4, line 26 through Page 5, line 14; Page 9, lines 19 through 21; Page 7, lines 18 through 20 and Page 14, Table 1.

Reexamination and reconsideration of this application, withdrawal of all rejections, and formal notification of the allowability of the pending claims are earnestly solicited in light of the following remarks.

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*The Claimed Invention is Patentable*  
*in Light of the Art of Record*

Claims 1 through 3, 5 through 11, 13 through 18, 20 and 21 stand rejected as anticipated by United States Patent No. 4,957,980 ("US 980") to Kobayashi et al. Claim 19 stands rejected as obvious in light of US 980.

It may be useful to briefly consider the invention before addressing the merits of the rejection.

As noted in Applicants Amendment of June 30, 2005, polyester films are widely known for packaging applications. Unfortunately, polyester alone does not exhibit the elevated level of barrier properties required in a number of applications.

Poly(m-xylenedipamide) (MXD6) is known to have superior barrier properties in comparison to polyester. Unfortunately, MXD6 and polyester are incompatible, hence films formed to-date have suffered from poor optical properties. As a result, conventional films formed from polyester/MXD6 blends are known to exhibit decreased transparency, i.e. elevated opacity, as discussed within US 980. (The Examiner's attention is kindly directed to US 980, Col. 1, lines 56 – 60). In addition, conventional films formed from polyester/MXD6 blends are also known to suffer from a lower gloss appearance.

Quite unexpectedly, Applicants have determined that the incorporation of MXD6 having a similar viscosity to the remainder of the polymer melt results in films having improved optical properties. Applicants more particularly found that an excessive viscosity differential between the polymer melt and MXD6 leads to melt separation, flow elevations/projections, flow disruptions and streak formation.

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Applicants have more particularly determined that the incorporation of effective amounts of MXD6 having a melt viscosity of less than 2000 poises provides a heretofore unknown balance of barrier properties and improved optical performance. In that regard, the Examiner's attention is kindly directed to the Application-as-filed on Page 7, lines 12 through 22.

Applicants have additionally determined that overlayers may be used to address any remaining optical issues, e.g. gloss issues, associated with MXD6-containing polyester films. Applicants have more particularly found that MXD6-containing polyester films having at least one overlayer including either no or very moderate amounts of MXD6 may be used to produce blended films having a combination of improved barrier properties and optical properties (including improved surface gloss). The smooth surfaces of the inventive films are particularly outstanding for metallization or ceramic coating. In that regard, the Examiner's attention is kindly directed to the Application-as-filed on Page 13, lines 4 through 5.

Accordingly, the claims are directed to biaxially oriented polyester films having a base layer (B) and at least one overlayer (A). At least the base layer (B) includes MXD6 having a melt viscosity smaller than 2000 poises. The base layer (B) and overlayer (A) are advantageously formed from polyester consisting of polyethylene terephthalate, polyethylene 2,6-naphthalate, poly-1,4-cyclohexane-dimethylene terephthalate, polyethylene 2,6-naphthalate bibenzoate and mixtures thereof. The resulting inventive films exhibit an oxygen transmission (OTR) smaller than  $50 \text{ cm}^3 \text{ m}^{-2} \text{ d}^{-1} \text{ bar}^{-1}$  and an opacity of less than 20%.

The overlayer (A) optionally includes up to 20% by weight of the recited poly(m-xylenedipamide), and exhibits a gloss of greater than 100. In particularly advantageous embodiments, the MXD6 is present within the base layer (B) alone, i.e. the overlayer (A) includes no MXD6, as recited in Claim 19. Such advantageous inventive films beneficially exhibit a more elevated gloss, i.e. a gloss of greater than 110.

US 980 does not teach or suggest the claimed invention.

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The impetus of US 980 is the incorporation of a compatilizing polyester within polyester/polyamide blow molding compositions. (Col. 1, lines 61 – 68; Col. 1, lines 5 - 9; Col. 4, lines 40 – 43; Col. 2, line 61 – Col. 3, line 12 and Col. 3, lines 18 – 20). US 980 expressly notes that the transparency of compositions that include a “simple blend” of polyester and polyamide (such as provided within the claimed invention) is “remarkably decreased,” thus their use is “extremely limited.” (Col. 1, lines 29 – 60).

After “intensively” studying the issue, US 980 teaches that the elevated opacity exhibited by polyester/polyamide blends is reduced by incorporation of a compatibilizing polyester. (Col. 1, lines 61 – 68). US 980 indicates that the compatibilizer “finely” disperses the polyamide within main polyester resin to “remarkably improve” the transparency of the resulting article. (Col. 3, lines 22 – 26).

The compatibizer is a polyester resin that has been grafted with an unsaturated carboxylic acid. (Col. 3, lines 26 – 29). The compatibilizer’s polyester component is said to have “good molecular compatibility” with PET. (Col. 3, lines 29 – 30). Exemplary unsaturated acid components include maleic acid and fumaric acid. (Col. 3, lines 35 – 39). The compatiblizer may be present in amounts of up to 50 parts by weight. (Col. 4, lines 4 – 7).

Evidencing the state of conventional wisdom, US 980 describes polyamides having a metaxylene group as “fragile in an amorphous state.” (Col. 3, line 13 – 15). US 980 indicates that it is thus “necessary” for the relative viscosity of the polyamide to be greater than 1.5, preferably up to 4.0. (Col. 3, lines 15 – 17).

Applicants respectfully reiterate that US 980 requires its compatibilizing agent to provide its “remarkable” improvement in transparency. As noted by the Examiner, US 980 does provide several comparative examples which do not include the compatibilizer. However, the

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comparative compatibilizer-free examples of US 980 exhibit a maximum transparency of only 75 %. (Table 1, Comparative Example 3).

US 980 thus does not teach or suggest the claimed invention.

Applicants respectfully submit that there would have been no motivation to have looked to US 980, which is directed blow molded articles.

However, even if Applicants had looked (which they did not) the present invention would not result. The impetus of US 980 is the required incorporation of a grafted polyester compatibilizer to improve the optical properties of polyester/polyamide blow molding blends.

Accordingly, US 980 can not teach or suggest the recited biaxially oriented polyester films having a base layer (B) and overlayer (A) formed from polyester consisting essentially of polyethylene terephthalate, polyethylene 2,6-naphthalate, poly-1,4-cyclohexane-dimethylene terephthalate and polyethylene 2,6-naphthalate bibenzoate and mixtures thereof, as recited in the amended claims.

In fact, there would have been no expectation of success for the recited films based upon US 980, as the recited films clearly exclude the required grafted polyester compatibilizer. Applicants further respectfully submit that to modify US 980 so as to exclude its required grafted polyester compatibilizer would render it unit for its intended purpose. MPEP 2143.01 (citing *In re Gordon*, 221 USPQ 1125 (Fed. Cir. 1984)).

And US 980 most certainly does not teach or suggest that such films further containing poly(m-xyleneadipamide) in an effective amount to exhibit an oxygen transmission (OTR) smaller than  $50 \text{ cm}^3 \text{ m}^{-2} \text{ d}^{-1} \text{ bar}^{-1}$  would also exhibit an opacity of less than 20%. US 980 instead teaches away from such films by expressly indicating that molded articles formed from compatibilizer-free polyester/polyamide blends exhibit a maximum of 75 % transparency.

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Nor does US 980 teach or suggest the recited biaxially oriented polyester films incorporating poly(m-xylenedipamide) having a melt viscosity smaller than 2000 poises. US 980, describing metaxylene polyamides as "fragile," instead suggests that higher viscosity polymers would be beneficial.

In contrast to the urgings of the Office Action, US 980, directed solely to polyester/polyamide blend resins, further fails to teach or suggest the recited inventive films in which the overlayer (A) does not include poly(m-xylenedipamide). And US 980 most certainly does not teach or suggest such poly(m-xylenedipamide)-free layers further exhibiting a gloss of greater than 110, as recited in Claim 19. US 980 instead indicates that polyamide-free resins impart insufficient barrier properties and are not suitable for use. Thus there would have been no motivation to have applied a poly(m-xylenedipamide)-free overlayer.

Nor does US 980, generically referring to the "molding" of its articles, teach or suggest the recited biaxially oriented films having a planar orientation of less than 0.160 and an opacity of less than 15 %, as recited in Claim 14.

The Office Action urges that the recited planar orientation value is "inherently" present within US 980. Applicants respectfully submit that the Office Action has failed to provide sufficient factual and technical grounds to establish that the purportedly inherent elements necessarily flow from the teachings of the prior art. *Transclean Corp. v. Bridgewood Services, Inc.*, 62 USPQ 2d 1865 (Fed. Cir. 2002)(holding that inherency requires the reference to necessarily include the unstated limitation); see also *In re Robertson*, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999)(holding that the claimed feature must necessarily be present and that mere probability or possibility is insufficient). Applicants respectfully submit that the manufacturing conditions used for blow molded articles versus biaxially oriented films are altogether different.

Applicants further respectfully make of record that the recited barrier properties and gloss likewise do not "necessarily" flow from US 980, and thus are not "inherently" present within US

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980. For example, Applicants respectfully note that US 980 teaches as little as 1 % polyamide within its blends. (Col. 3, lines 18 – 21). Such blends would not be expected to necessarily provide the advantageous recited barrier properties of the claimed invention. The Examiner's attention is kindly directed to the Application-as-filed on Page 7, lines 3 through 6.

Applicants further respectfully submit that films formed from the advantageous polyester monomers of Claim 22 are likewise patentable in light of US 980, based upon the reasoning provided above.

Accordingly, Applicants respectfully submit that Claims 1 through 3, 7 through 11, 13 through 20 and 22 are patentable in light of US 980.

### **CONCLUSION**

It is respectfully submitted that Applicants have made a significant and important contribution to the art, which is neither disclosed nor suggested in the art. It is believed that all of pending Claims 1 through 3, 7 through 11, 13 through 20 and 22 are now in condition for immediate allowance. It is requested that the Examiner telephone the undersigned if any questions remain to expedite examination of this application.

It is not believed that extensions of time or fees are required, beyond those which may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time and/or fees are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required is hereby authorized to be charged to Deposit Account No. 50-2193.



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Respectfully submitted,

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**CERTIFICATE OF FACSIMILE TRANSMISSION**

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